Minutes of spin meeting 04/16/08

Fanglei first presented the progress on the spin tracking done with large 9th harmonics around resonance 36+ν. The discussion is focused on the closed orbit distortion used in the simulation. The orbit was generated by fitting a smooth 9th harmonic orbit at PUE locations with 48 corrector strength. It is very strange that adding one extra PUE at F20 caused a big phase shift in the second half of the AGS ring. The eigen values were solved by SVD method. There may be problem with the package she got from the numerical recipes. Alfredo asked why not using the real corrector strength from the real machine. Kevin volunteered to show her how to find the corrector strength from the AGS orbit correction application. Leif pointed out that the algorithm used by the application is similar to the one Fanglei used, except that the application derives the currents of all correctors which are proportional to the strength of each magnet. He would like to see how the orbit look like if the harmonic is generated this way.

Woody compared the A15 multi-wire profiles with Waldo's simulation results. The beam life time is similar in both simulation and measurements. The measurements showed bigger emittance than the simulation, which indicates some mismatch. Further analysis is needed to fit the central part of the measured profiles. Woody and Waldo will also crosscheck the beam parameters used in the simulation. Kevin asked how can one distinguish the optical and dispersion mismatch. Then the question is do we have dispersion matched or not. Nick believed that there was such a solution. In reality, Keith has to move the BtA settings away from the settings. Something is wrong. Thomas commented that we should leave these quads fixed when tuning AGS injection. Leif commented that we were always under pressure to deliver beam and did not spend enough time to study the BtA matching. The discussion then moved on to if BtA model does not reflect the reality, such as distance between magnets, excitation curves of these magnets, etc. Kevin said that we could measure the magnet distances with tape measure if needed; he also had some tech notes about BtA matching from Jim Niederer. So here is a list of things to be done for the BtA matching:

1. Measure (survey) the magnets in BtA.

2. Check the excitation curves used in MAD.

3. Check the past works done by Jim and Mike Blaskiewicz on the BtA matching.

4. Revisit the BtA modeling after above steps.

5. In the coming run, locate beam time for BtA matching study based on the best BtA modeling.

Haixin